

CHAL - 9502
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6 January 1959

MEMORANDUM FOR: Deputy Director (Plans)

THROUGH : Director of D & P, DPD-DD/P

SUBJECT : Granger Countermeasures Repeater

1. A meeting was held on 30 December 1958 with Mr. [] to discuss the progress and review the capabilities and limitations of the Granger Countermeasures Repeater. Present, besides [], were representatives of Edwards, Commo, Operations and R & D.

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2. Mr. [] reported that the three recent changes in the Mod 504 do not cause complete defeat of the attacking interceptor. The box does cause the A.I. to break lock approximately once each mile during the closing run-in. In the F-3H, it is easy to gain lock again after the break lock. Most runs resulted in the system capable of breaking lock to the minimum range of three miles when using a tail chase. This result is not consistent and varies with pilot experience. On one run, the pilot was able to maintain continuous lock-on from eight miles back to the firing point. On most runs, Mr. [] felt that the system was performing adequately to prevent the successful launching of a beam riding missile or the firing of guns and/or rockets. He is doubtful that sufficient deception had been achieved to prevent launching of a "seeker" type missile. The ability of the pilot to maintain lock is enhanced by flying at an altitude lower than the target, as would be the operational intercept.

3. For tactical considerations, any timing circuit desired could be incorporated into the box. Some such timing could be used to make the system continue to operate after the break-lock has been accomplished. This might serve to prevent the pilot's establishing an immediate subsequent lock on. Other than a timing circuit, Mr. [] does not believe we can expect any technical improvements in this system.

25 YEAR RE-REVIEW

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25X1 4. In order to achieve technical improvement, we must go to higher power. Even doing so, he is not sure an increase to 1000 watts would do the job. A 1000 watt system would weigh 100 pounds and would not fit in the present housing. To fit a 50 watt tube in the present location would necessitate moving the power supply to a different location. The time loss to get the 50 watt system into operation was estimated at one year. He did not hold much hope for the four watt tube suggested previously by Dr. [] nor did he believe that the results obtained by going to higher power would justify the time and expense.

25X1 5. Two of Mr. [] conclusions must be given serious consideration: (1) no further technical improvements can be expected, and (2) the results of going to higher power would not justify the time and money. Based on these conclusions, the proposed six point program for testing the present configuration* should be vigorously pursued. At the end of the flight test program, CHALICE Operations must decide whether or not the Granger Repenter will accomplish the desired results. If so, the box should be released from R & D and turned over to Operations. It is presumed that such a decision will be based on the validity of the design concept with respect to the changes, real or anticipated, of the Soviet intercept capabilities, and the importance of such a device as a result of the Zoom Climb tests.

6. If it is the opinion of Operations that this system is not adequate, no further work should be done on this box. In addition, no new work should be initiated until some formal design specifications are established for any new design concept. Then various proposals from several contractors should be reviewed for a logical course of action. Until such a procedure has been followed, the danger of falling into the same trap exists, namely, that a box is successfully designed and fabricated that has an adequate mission capability, but does not have a mission.

/s/ 25X1

Major

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*see Trip Report of Visit to Granger Associates dated 19 Dec 1958

RDH:amd (6 Jan 1958)

1 - DD/P

2 - []

3 - O, G

4 - []

5 - Subject File

6 - Chrono

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